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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
SEALEY, LANCE W	

ART UNIT	PAPER NUMBER
2671	24

DATE MAILED: 09/10/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/560,424	ANH ET AL.	
	Examiner	Art Unit	
	Lance W. Sealey	2671	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 April 2004* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *1-13 and 19* is/are allowed.

6)☒ Claim(s) *14-18 and 20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *10* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Allowed Subject Matter

1. Claims 1-13 and 19 are allowed because no prior art anticipates or suggests, in a method for integrating anatomical information from a plurality of sources of information, receiving two or more three dimensional (3D) anatomical maps *sharing a common plane specified by three or more marker points* common to the two or more maps (italics added by examiner to emphasize exactly what makes claim 1 allowable), and a system comprising an appliance with one or more teeth markers embedded therein, an X-ray camera receiving X-ray information with X-ray marker information, a three-dimensional digital camera receiving three-dimensional anatomical information with anatomical marker information, a dental scanner o generate a three-dimensional teeth model with teeth marker information, and a computer to align the X-ray information, 3D anatomical information, and the 3D teeth model using the marker information, *wherein each marker is a tie point* (italics added by examiner to emphasize exactly what makes claims 1 and 19 allowable). Claims 2-13 are allowed because these claims depend, directly or indirectly, on claim 1.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention

was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 14-16 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jordan in view of Bergersen (U.S. Pat. No. 5,882,192).

4. Regarding claim 14, Jordan discloses receiving X-ray information having X-ray marker information (col.24, ll.35-47), receiving a three-dimensional anatomical information having anatomical marker information (col.24, ll.35-47), aligning the X-ray information, 3D anatomical information and the 3D teeth model using the marker information (col.24, ll.35-47), and displaying the aligned X-ray information, 3D anatomical information, and the 3D teeth model (col.8, l.54-col.9, l.6).

5. However, Jordan does not disclose wearing a dental appliance with one or more teeth markers. These elements are disclosed in the Bergersen computerized orthodontic diagnosis and appliance dispenser (the dental appliance is **10**, FIG.1, and the teeth markers are the grooves in the dental appliance).

6. Therefore, it would have been obvious to a person skilled in the art at the time this invention was made to use the Bergersen orthodontic dispenser in the Jordan dental articulation method. This would allow the dentist to provide a proper and complete diagnosis by allowing him or her to analyze facial symmetry, facial length, profile and lip contour, chin and nose contour, and potentially other necessary aspects of the patient's face (Bergersen, col.4, ll.48-52).

7. With respect to claim 15, Jordan discloses an X-ray camera receiving X-ray information having X-ray marker information (implied by col.24, ll.35-47), a three-dimensional digital

camera receiving a three-dimensional anatomical information having anatomical marker information (implied by col.24, ll.35-47), a dental scanner to generate a three-dimensional teeth model with teeth marker information (implied by col.12, ll.3-6), and a computer to align the X-ray information, 3D anatomical information and the 3D teeth model using the marker information (col.24, ll.35-47). However, Jordan does not disclose an appliance with one or more teeth markers embedded therein. These elements are disclosed by Bergersen at col.4, ll.39-43.

8. Therefore, it would have been obvious to a person skilled in the art at the time this invention was made to use the Bergersen orthodontic dispenser in the Jordan dental articulation method. This would allow the dentist to provide a proper and complete diagnosis by allowing him or her to analyze facial symmetry, facial length, profile and lip contour, chin and nose contour, and potentially other necessary aspects of the patient's face besides information about teeth (Bergersen, col.4, ll.48-52).

9. Concerning claim 16, Jordan discloses stereo X-ray information (Abstract, first sentence, and col.24, ll.35-43).

10. Finally, concerning claim 20, Bergersen discloses the appliance comprising a polymeric shell having cavities and wherein the cavities of the shell have different geometries shaped to receive teeth at **10**, FIG.1.

11. Therefore, in view of the foregoing, claims 14-16 and 20 are rejected as being unpatentable under 35 U.S.C. 103 by Jordan and Bergersen.

12. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jordan in view Bergersen and further in view of Meccariello (U.S. Pat. No. 4,980,905).

13. Jordan does not disclose a calibration array to calibrate the X-ray camera. This is disclosed in the Meccariello X-ray imaging apparatus dose calibration method at the Abstract, third sentence.

14. Therefore, it would have been obvious to one of ordinary skill in the art at the time this invention was made to add the Meccariello method to the Jordan-Bergersen method. This would enable a more accurate diagnosis of dental illnesses by enabling the user to account for variations in the characteristics of system components such as the image intensifier, the video camera, and the X-ray tube (Meccariello, col.2, ll.8-12).

15. Accordingly, in view of the foregoing, claim 17 is rejected as being unpatentable under 35 U.S.C. 103 by Jordan, Bergersen and Meccariello.

16. Finally, claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jordan in view of Bergersen and further in view of Burbury.

17. Neither Jordan nor Bergersen disclose an X-ray cassette carrier. However, Burbury discloses this element at col.1, ll.26-30.

18. Therefore, it would have been obvious to one of ordinary skill in the art at the time this invention was made to include the X-ray cassette carrier apparatus in the Jordan-Bergersen method. This would allow the X-ray source and film to be manipulated and oriented with respect to patients of different sizes (Burbury, col.1, ll.26-30).

19. Accordingly, in view of the foregoing, claim 18 is rejected as being unpatentable under 35 U.S.C. 103 by Jordan, Bergersen and Burbury.

Response to Arguments in Brief

A. The Appellants' Submission of a Terminal Disclaimer to Overcome the Obviousness-Type Double Patenting Rejection of claims 1-9, 11-13 and 15-19

The appellants' terminal disclaimer has been accepted and entered, and the obviousness-type double patenting rejection has been overcome.

B. Claims 1 and 11 Are Patentable over the Prior Art

The appellants assert that Jordan does not disclose "receiving two or more three dimensional (3D) anatomical maps sharing a common plane specified by three or more marker points common to the two or more maps."

The examiner agrees, and therefore claims 1-13 are allowed.

C. Dependent Claims 14-16 and 20 are Unpatentable Over Jordan in view of Bergersen

The appellants assert that a *prima facie* case for obviousness was not made under 35 U.S.C. 103 and M.P.E.P. 2142-2143 for claim 14. Presented below are the prongs of the M.P.E.P. 2142-2143 provision the applicants assert were not established by the examiner in order to make a *prima facie* case of obviousness:

1. The examiner must establish that the prior art references, alone or in combination, teach or suggest all the claim limitations. The appellants assert that neither Jordan nor Bergersen teach the element of claim 14, "wearing a dental appliance with one or more teeth markers." However, this claim limitation is taught in **10**, FIG.1 of Bergersen (the "teeth markers" are the small grooves in the appliance. These may not be the same type of teeth markers as those disclosed in the applicants' claim 1, but claim 14 is an independent claim that neither depends on, nor stands or falls together with, claim 1. Since the claim also does not further describe the tooth

markers with adjectives like radiopaque metal spheres or tie points, the grooves can be characterized as "teeth markers."

2. The examiner must show some suggestion or motivation, either in the prior art references or in the knowledge generally available to one of ordinary skill in the art, to combine the reference teachings so as to produce the claimed invention. Since the motivation for combining Bergersen with Jordan for claims 14-16 and 20 was stated at item 6 above, the examiner has fulfilled this prong of M.P.E.P. 2142-2143.

Finally, since the appellants assert that claim 15, on which claims 16-20 depend, recite limitations similar to claim 14, these explanations also apply to claim 15.

D. Conclusion

For the above reasons, it is believed that the rejections in the non-final rejection of March 18, 2002 (Paper No. 12) should be sustained except for the rejection of claims 1-13.

Any inquiry concerning this communication or earlier communications from the Office should be directed to the examiner, Lance Sealey, whose telephone number is (703) 305-0026. He can be reached from 7:00 am-3:30 pm Monday-Friday EDT.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Zimmerman, can be reached at (703) 305-9798.

Any response to this action should be mailed to:

MS Non-Fee Amendment

Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

or faxed to:

(703) 872-9306

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

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